PAGE E5
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The Shuttle's Strategic Lesson

If Challenger Failed, How Can a Soviet First Strike Succeed?

By Walter Pincus

IF THE CHALLENGER tragedy teaches us anything, beyond its obvious lessons for NASA's manned space program, it should be that a successful Soviet "first strike" against our strategic nuclear forces is nearly impossible.

A first strike of the sort outlined in the Pentagon's worst-case scenarios would require flawless performance by hundreds of Soviet missiles, thousands of warheads and a vast array of communications and support gear. First-strike theorists assume that these complex systems can perform at nearly 100 percent reliability.

But the failure of the Challenger's solid-fuel rocket booster reminds us of the frailty of such systems: One small element in a long-scheduled space launch can fail, even after being babied and pampered and watched and modified.

The Pentagon understands the limits of space technology in designing and testing U.S. missiles. Random tests of missiles based on land and at sea have sometimes shown surprising failure rates. There also have been occasional high-visibilty disasters, such as the launch failure last August that destroyed an Air Force unmanned Titan 34D rocket booster and its cargo, an $800 million photo-intelligence satellite.

But when it comes to Soviet missile technology, the Pentagon assumes nearly flawless performance to accomplish the feared first strike. Pentagon analysts, in making their assessment of this Soviet threat, assume that the Russians could launch not one or two rockets but 650 to 1,000 of them, virtually at the same time, with minimal advance preparation.

For years, Defense Department witnesses have told Congress that such a Soviet attack could wipe out 90 percent of the U.S. land-based missile force. They base such a finding primarily on the simplistic idea that Moscow possesses 6,000 accurate warheads on its biggest missiles and there are only 1,027 U.S. silo-based ICBMs to hit.

Walter Pincus covers national security affairs for The Washington Post.

These first-strike assumptions are contradicted by evidence about U.S. rocket performance, intelligence estimates of failure rates for Soviet missiles, and by common sense. Consider the practical problems that would confront a first-strike planner:

- Reliability. Even the Soviets probably aren't sure how reliable their missile force would be in actual combat, but test results suggest that the Soviets would have serious problems. One top former Pentagon official said recently that when the Soviets test their ICBMs under peaceful conditions and normally one at a time, they experience failure rates of roughly 15 percent.
- Timing. NASA has trouble getting even one launch off on time, and space-flight watchers have become used to frequent "holds" and postponed launches. But in launching a nuclear attack, there would be no opportunity for holds and no way to delay the launch of one or more of the hundreds of attacking ICBMs because a guidance or warning or signal had come up wrong. These timing problems would be compounded for the Soviets by that fact that most of their ICBMs are liquid fueled, and thus more difficult to handle.
- Weather. The commission investigating the Challenger explosion is now focussing on the effects of unusually cold weather on the solid-fuel rockets. Imagine the weather problems that would afflict the Soviet strategic forces, which are based in silos spread across a continent, subject to widely varying weather conditions.

A Pentagon program to test the U.S. strategic missile force demonstrates that the military's reliability problems are at least as serious as those recently uncovered at NASA.

The test program has revealed failures in almost every Pentagon strategic missile system. The Navy's first sub-launched Polaris missile developed a safety-catch problem that could have prevented it from firing. A 1983 study done for the Air Force reported the failure rate of the Navy's Poseidon missile up to that time was 7 percent: five failures in 67 launches. The Poseidon, which still is in service, had a major second-stage problem. The newest Navy missile, the Trident, has had a publicized first-stage engine problem that officials said is being corrected.

The Air Force has had fewer known failures, but retired officials put the failure rate at around 5 to 10 percent. The Air Force study reported 11 failures in launches of the Minuteman and another missile, the Scout.

A Soviet first strike obviously will remain a worry for the United States as long as the Soviets have nuclear missiles. Even if the Soviets experienced a 15 percent failure rate, they still could do considerable damage. But we also should recognize that the real-life problems of leaky boosters and faulty systems would make a Soviet attack planner think twice before assuming that he could knock out all of the U.S. land-based missile force with a surprise attack.

The first-strike illusion is expensive for both sides. The Reagan administration and its predecessors—playing on fears that the Soviets could launch a preemptive attack and knock out our land-based missiles—justified the new MX ICBM so that Washington could threaten a strike against Moscow's missiles. Pushed by a Congress that didn't want MX, the Air Force now is also researching a costly mobile Midgetman missile specifically designed to survive such a "first strike."

Moscow, in turn, has talked of a U.S. "first-strike" effort to justify its turning to a new, mobile SS25 ICBM and a much larger SS24 missile that could be placed in a silo or on a railroad launcher. It also uses that same argument to support its opposition to Reagan's Strategic Defense Initiative, the so-called Star Wars research program.

The Challenger tragedy should have a basic impact on this country's space program by ending the myth that the shuttle is essentially operational and safe for civilian passengers and useful publicity stunts. The shuttle will go back to being considered an experimental and dangerous space vehicle.

Challenger could serve a similarly useful purpose by undermining the similarly mythical notion of a nuclear "first strike."